

What is claimed is:

1. A loudspeaker comprising:

a frame having an interior bottom surface with a side portion extending upward
5 from, and surrounding, said interior bottom surface, said side portion terminating in an
exterior edge of a uniform first height above said interior bottom surface with said
exterior edge defining an opening into the frame having a first predetermined size and
shape, and a selected distance between said interior bottom surface and said exterior
edge an inner surface of said side portion defines an interior mounting surface
10 therearound;

a cone having an outer edge and an inner edge, said cone having a top surface
and a bottom surface with said outer edge being substantially the same shape as, and a
second size that is smaller than said first size defined by the exterior edge of the frame,
with said inner edge defined by centrally located circular hole of a first diameter
15 through the cone;

a dual suspension system having first and second flexible suspension portions
separated a predetermined distance from each other with the first suspension portion
connected between the exterior edge of the frame and the outer edge of the cone, and
the second suspension portion connected between said interior mounting surface of the
20 frame and the bottom of the cone spaced apart from the outer edge of the cone;

an audio motor including a magnet assembly, a thin walled bobbin and a voice
coil wound near a bottom edge of the bobbin with the magnet assembly mounted to
the bottom of the frame with a top of the magnet assembly below said interior
mounting surface on the side of the frame; and the bobbin has an outer surface of a
25 second diameter with the inner edge of said cone attached to the outer surface of the
bobbin spaced apart from said voice coil, said first diameter and said second diameter

being substantially equal one to the other; and

a stiff diaphragm having an outer edge, a top surface and a bottom surface; said stiff diaphragm having a third size that is substantially the same or smaller than said second size and is substantially the same shape as said opening defined by the exterior
5 edge of the frame; the outer edge of the diaphragm connected to the top surface of the cone; and the bottom surface of said stiff diaphragm having a centrally located connecting ring of a third diameter that is larger than second diameter of the bobbin with said connecting ring of the diaphragm connected to a top edge of the bobbin.